

REMARKS

This Final Response is in response to an Office Action having a mailing date of February 20, 2003. Claims 1-23 are pending in the present Application.

This application is under Final Rejection. Applicant has presented arguments hereinbelow that Applicant believes should render the claims allowable. In the event, however, that the Examiner is not persuaded by Applicant's arguments, Applicant respectfully requests that the Examiner enter the Amendment to clarify issues upon appeal.

In the above-identified Office Action, the Examiner rejected claims 1-23 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains. The Examiner also rejected claims 1-23 under 35 U.S.C. § 103 as being obvious in light of U.S. Patent No. 6,182,258 (Hollander) in view of U.S. Patent No. 6,006,024 (Guruswamy). Also in the above-identified Office Action, the Examiner objected to the Affidavit (Affidavit I) provided in the previous amendment, dated December 4, 2002, as containing new matter. In particular, pages 3-7 and Exhibits A and B were objected to as introducing new matter.

Applicant has provided herewith a new Affidavit (Affidavit II) under 37 CFR 1.132. The Affidavit II omits the material that the Examiner indicated was new matter. However, Applicant respectfully disagrees that the matter objected to by the Examiner includes new matter. Instead, Applicant respectfully submits that the matter in Affidavit I merely further clarifies what is already in the specification and claims. For example, paragraphs 8-11 of the Affidavit I describe the use of a snooper, checker, and generator in connection with testing a particular island that sends and receives ATM cells. Because the particular island in the example is involved in sending and receiving ATM traffic, the snooper, checker, and generator described use ATM cells in checking the behavior of the island. Another island having a different function may be checked in a different

manner using other data packets. Thus, the matter in the Affidavit I merely illustrates how the invention might be used with a particular ASIC. Accordingly, Applicant respectfully submits that the matter objected to by the Examiner merely clarifies the claims, rather than introducing new matter.

In the above-identified Office Action, the Examiner rejected claims 1-23 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains. In particular, the Examiner indicated that the terms snooper, checker, interface, test case and generator are not adequately described in the specification in such a way as to allow one of ordinary skill in the art to make and/or use the invention.

As previously argued, Applicant respectfully disagrees that any of the terms snooper, checker, interface, test case, and generator are not adequately described in the specification. Applicant respectfully submits that the terms, particularly snooper, interface, and test case are used in a manner that is consistent with the art and, therefore, in a manner which one of ordinary skill in the art would understand. What is known in the art in conjunction with the description provided in the specification, as well as the additional text and figures provided in the previous amendment, would allow one of ordinary skill in the art to understand the above terms. With such an understanding, one of ordinary skill in the art would be able to make and/or use the invention.

As previously argued, signals are input to or output from the representation of the IC via the interface. Specification, page 2, lines 2-5 and page 7, lines 2-5. In addition, as discussed in the BACKGROUND OF THE INVENTION, the interfaces are already present in the integrated circuits of the prior art. Specification, page 2, lines 1-5. As is also described in the specification, the IC is typically represented using code during various stages of integration. For example, the IC may be represented in a behavioral language, register transfer level and gates during

simulation. Specification, page 12, lines 1-4. The IC and thus the interface and islands are thus representations in some type of code. The interface allows the corresponding islands to interact with other pieces of code, such as other islands or the snooper, checker and generator. Specification, page 12, lines 4-7. For example, as described in the Declaration, the interfaces typically include some type of connector and the protocols used to manage the connectors. The functions of the snooper, checker, and generator are described in the specification, page 11, line 6-page 15, line 16 and Figures 3-7C. Thus, Applicant respectfully submits that the snooper, checker and generator are adequately described by the specification and drawings.

In addition, Applicant has provided herewith the Affidavit II, from one of the inventors, Dr. Raj Singh. As indicated by Dr. Singh, upon reading the specification, one of ordinary skill in the art in the relevant field would be capable of practicing the claimed invention. In particular, one of ordinary skill in the art would readily understand the terms snooper, checker, generator, interface, and test case. One of ordinary skill in the art would also understand how to utilize the snooper, checker and generator, in conjunction with the test case and interface, based upon a reading of the specification. Moreover, as indicated in the Declaration, the snoopers, checkers and generators include sufficient intelligence, or logic in the form of procedures and internal data structure, to perform their functions. For example, based only upon a request to perform a particular simulation and data from a test case, the generator can provide the appropriate inputs to the island under test. Similarly, the checker and snooper can monitor the island for outputs, generate the desired outputs, and check the outputs against the desired outputs without significant input from the test case. In addition, as indicated by the information provided in the Declaration, the functions performed by and outputs checked using the method and system in accordance with the present invention may change based upon the type of integrated circuit being developed.

Consequently, Applicant respectfully submits that the subject matter of the claims is

adequately described in the specification. Applicant respectfully submits that the specification describes the subject matter of claims 1-23 in such a way as to enable one skilled in the art to which it pertains.

The Examiner also rejected claims 1-23 under 35 U.S.C. § 103 as being obvious in light of Hollander in view of Guruswamy.

Applicant respectfully disagrees with the Examiner's rejection. As previously described, claims 1, 10 and 17 recite a system, method, and computer-readable medium for providing simulation of an integrated circuit ("IC") during development of the IC including an interface. The system, method and computer-readable medium include a checker that determines a desired output based upon an input to the island and checks the output to determine whether the output is the desired output. Also recited in claims 1, 10 and 17 are a snooper and generator. The snooper is coupled with the interface, monitors the interface, and obtains an output provided by the island during simulation. The generator provides the input to the island during simulation. The generator includes the intelligence to provide the input to the island based only upon data and a request provided by the at least one test case to the generator. The request from the at least one test case requests that the generator perform a particular simulation on the island.

Thus, the checker can both generate inputs and check inputs. Moreover, using the system, method and computer-readable medium recited in claims 1, 10, and 17, hierarchical simulation of the behavior of the IC is performed. Furthermore, during integration, the generator can be replaced by another island, which provides the inputs to the island, while the snooper and checker can still check the island via the internal interface. Specification, page 13, lines 10-16. In addition, because the snooper, checker and generator can perform the functions recited, the test case(s) need not contain intelligence for controlling specific functions of the snooper, checker and generator. Specification, page 13, lines 7-20. Consequently, the test case(s), many of which

may be required for testing of the IC, are simpler to provide.

In contrast, Hollander fails to teach or suggest the use of a checker that both generates the desired inputs and checks the actual inputs against the desired inputs. Hollander does describe a modular system that dynamically tests integrated circuits. The modular system of Hollander includes a test generation module and a checking module. Hollander, col. 4, line 66-col. 5, line 25. The system of Hollander is dynamic, which means that the test vectors can be generated in concurrence with the device being tested and can be controlled by feedback of the device. Hollander, col. 3, lines 10-13. The test generation module automatically creates inputs. Hollander col. 4, line 66-col. 5, line 7. Hollander does state that dynamic checking can include synchronizing the checking module with the test generation module. Hollander, col. 5, lines 18-25 and col. 8, lines 29-32. However, Applicant has found no mention in the cited portion of Hollander that the synchronizing would include the checking module actually generating the desired outputs based upon the inputs from the test generation module. Instead, synchronizing might include the checking module receiving the desired outputs from the test generation module. Thus, even if the system of Hollander responds to the outputs of the device under test, Applicant can find no indication that it is the checking module, not the test generation module, that determines the desired outputs. Consequently, Hollander fails to teach or suggest the recited system, method, and computer-readable medium in which the checker both generates the desired inputs and checks the actual inputs against the desired inputs.

Guruswamy fails to remedy the defects of Hollander. Applicant can find no mention in the cited portions of Guruswamy of using a checker to not only check the outputs of the island under test, but also to generate the desired outputs based upon the inputs. Consequently, any combination of Hollander and Guruswamy would also omit this feature. Hollander in view of Guruswamy thus fail to teach or suggest a system, method, or computer-readable medium that includes a checker that

generates desired output based upon the inputs to the island and checks the actual outputs against the desired outputs. Accordingly, Applicant respectfully submits that independent claims 1, 10 and 17 are allowable over the cited references.

Claims 2-9, 11-16 and 18-23 depend upon claims 1, 10 and 17, respectively.

Consequently, the arguments herein apply with full force to claims 2-9, 11-16 and 18-23.

Accordingly, Applicant respectfully submits that claims 2-9, 11-16 and 18-23 are allowable over the cited references.

Accordingly, for the above-mentioned reasons, Applicant respectfully submits that the claims are allowable over the cited reference. Consequently, Applicant respectfully requests reconsideration and allowance of the claims as currently presented.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issue remain, the Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,



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